

City of Encinitas

Ficus Pruning Dose #2

SUBMITTED TO:

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Street/ NPDES Division
City of Encinitas

PREPARED BY:

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Qualified Applicator License# 140768
Qualified Tree Risk Assessor

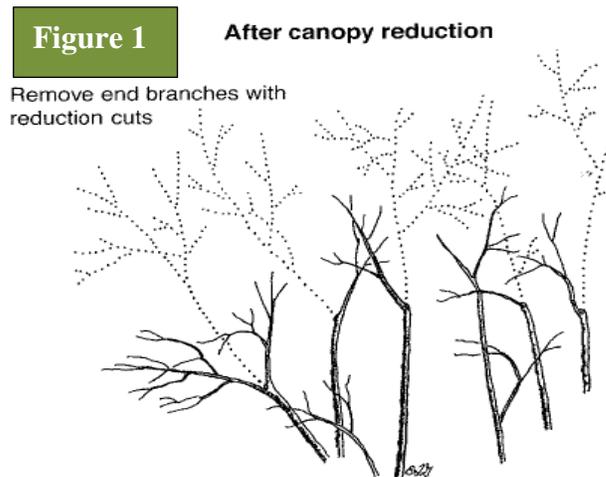


APRIL 12, 2018

Review of WCA’s Pruning Objectives and Methodology

The proposed pruning dose plan detailed in the Encinitas Assessment of Ficus Trees report submitted on 10/21/2016 was to perform gradual crown reduction pruning once a year over the period of 5 years. Reasons for applying these pruning doses were to reduce the **mechanical stresses**¹ applied by these overextended stems/ branches and to help mitigate the dangers associated with these structural problems. The other reason for doing the reduction pruning over a series of years is to reduce the health impacts from foliage loss and number of pruning wounds. In order to reduce the trees’ size over time while minimizing stress on the trees, WCA recommended removing approximately 6% of the current measured height and spread of each subject canopy per yearly pruning dose. This should result in an overall canopy reduction of 30% per tree after a 5 year period. Thereafter, the trees can be re-evaluated to maintain or refine the pruning plan with the goal being to keep the trees at this now reduced height while retaining their benefits and character as best we can.

Reduction pruning (see Figure 1) is the method that WCA recommended to be applied to achieve the crown reduction goals. The pruning cuts performed should reduce limbs back to lateral branches that are at least 1/3rd the diameter of the parent branch and should be chosen with structure and canopy balance in mind. If there are not suitable laterals meeting the 1/3rd size correlation, pruning other laterals may only be considered under the direction of an ISA Certified Arborist. Some of these pruning cuts will be done to a lateral branch that extends nearly as far as the removed parent branch; if this is the case then additional subordination pruning cuts to a bud may be acceptable in order to maintain a point of **apical dominance** and to achieve the goal. Because trees are living organisms with a multitude of biological and environmental variables, additional time may be needed for a tree to develop growth suitable for the reduction cuts. Over time, there should be an increase in interior canopy foliage (because of increased light penetration) which improves branch taper, live crown ratio, as well as broadening the options for new scaffold branch selection.



Reduction shortens stems and branches back to live lateral branches. (Removed stem and branch sections are shown as dotted lines.) Notice that live, unpruned branches were left on the edge of the new, smaller canopy and that no heading cuts were used. Properly done, this technique provides a more pleasing, unpruned natural look to the tree or shrub compared to topping or shearing. Compared to topping, less decay is likely to enter the tree following reduction.

¹ Terms appearing in boldface type are defined in the Glossary at the end of this report.



PRUNING DOSE #2 MONITORING OBSERVATIONS AND DISCUSSION

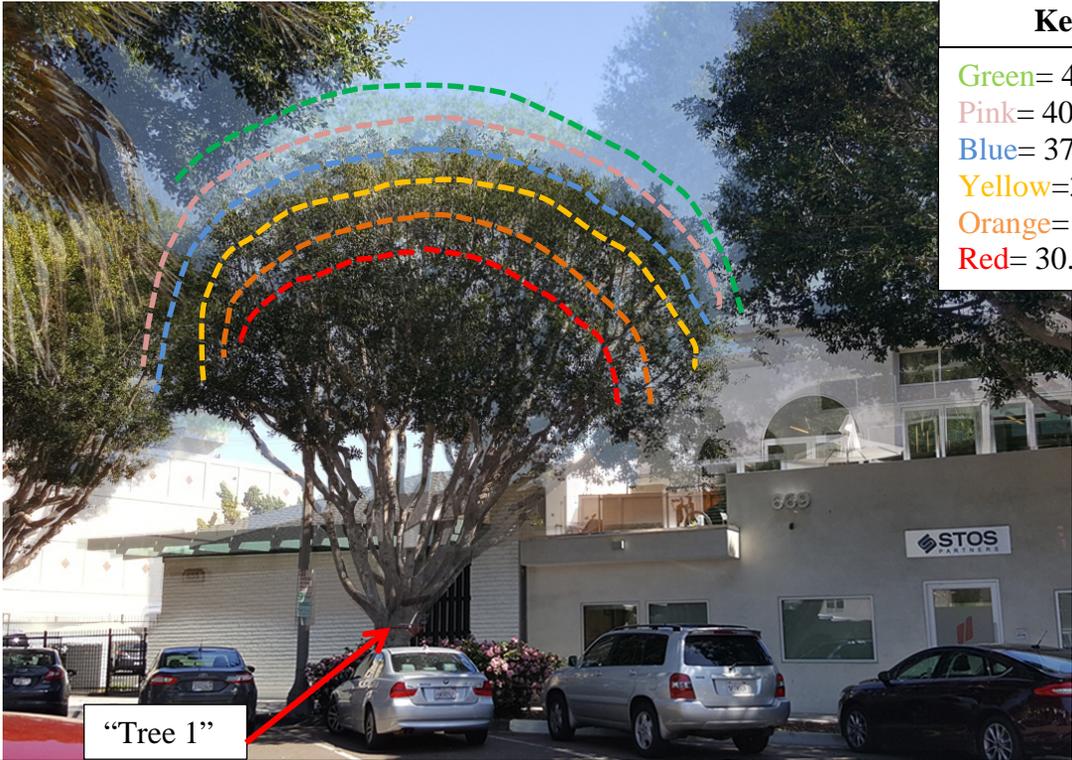
For this year's pruning dose, it was decided to concentrate more of the crown reductions towards clearing growth away from buildings and improving the overall balance of the four tree canopies. This was decided upon to address resident requests, improve canopy structure, and to allow interior growth to further develop into larger more suitable reduction pruning cut options for next year's pruning dose. Because of this decision, the 6% overall canopy reduction goal may have not been fully reached on all of the trees this year. Despite this, I still believe we are on course to achieving the crown reduction and risk mitigation goals that were set 10-21-2016. **Refer to photos in Appendix A Pruning Dose Goal Monitoring to view layered images of progress over the last two pruning doses. Pictures were taken from specified locations as stated in the previous pruning assessment report (from 10-21-2017).**

ROOT PRUNING OBSERVATIONS AND DISCUSSION

On March 26nd of 2018, WCA met with the City to evaluate options for correcting water drainage problems with the **root bridge plate** sections that were installed on the east side of Tree 3 and Tree 4 (at 1011 3rd Street). After removing the plates and exposing the roots, WCA and the City's Arborist (Christopher Kallstrand) came to the collective decision that shaving the top of two roots (east of Tree 4) would be the best solution for preserving the health and stability of the tree as best we can while achieving proper water drainage away from the home. This root shaving was performed on March 26, 2018 (see Photos in Appendix B Root Shaving).

APPENDIX A PRUNING DOSE GOAL MONITORING

Photo Taken From: 33°02'37.1"N 117°17'40.6"W (Photo Date: 3-29-18)

Photo # 1	Tree 1							
								
<table border="1"> <thead> <tr> <th>Key</th> </tr> </thead> <tbody> <tr> <td>Green= 43'</td> </tr> <tr> <td>Pink= 40.4'</td> </tr> <tr> <td>Blue= 37.8'</td> </tr> <tr> <td>Yellow=35.3'</td> </tr> <tr> <td>Orange= 32.7'</td> </tr> <tr> <td>Red= 30.1'</td> </tr> </tbody> </table>		Key	Green= 43'	Pink= 40.4'	Blue= 37.8'	Yellow=35.3'	Orange= 32.7'	Red= 30.1'
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<ul style="list-style-type: none"> Illustrated above is an approximate example of what this pruning plan should visually accomplish for “Tree 1” during this five year period (see key for yearly goals, red dotted line representing year # 5). <p>Goals: The proposed goal is to achieve a 30% (12.9 feet) crown reduction over a five year period leaving the tree with a height of approximately 30 feet after the final year’s pruning dose.</p> <p>Progress: The subject tree is looking at an approximate overall canopy reduction of 2.58 feet (about 40 inches) per pruning dose without taking into account the seasonal growth. This year’s pruning goal was to reduce the canopy to a height of about 37.8 feet. As you can see, the tree canopy’s overall height has been reduced to about 38 feet (blue dotted Line) which is reasonably in line with the proposed five year pruning goals. There was a slight compromise for this year’s height goal in order to accomplish required building clearance and allow interior growth time to further develop into larger more suitable reduction pruning cut options.</p>								

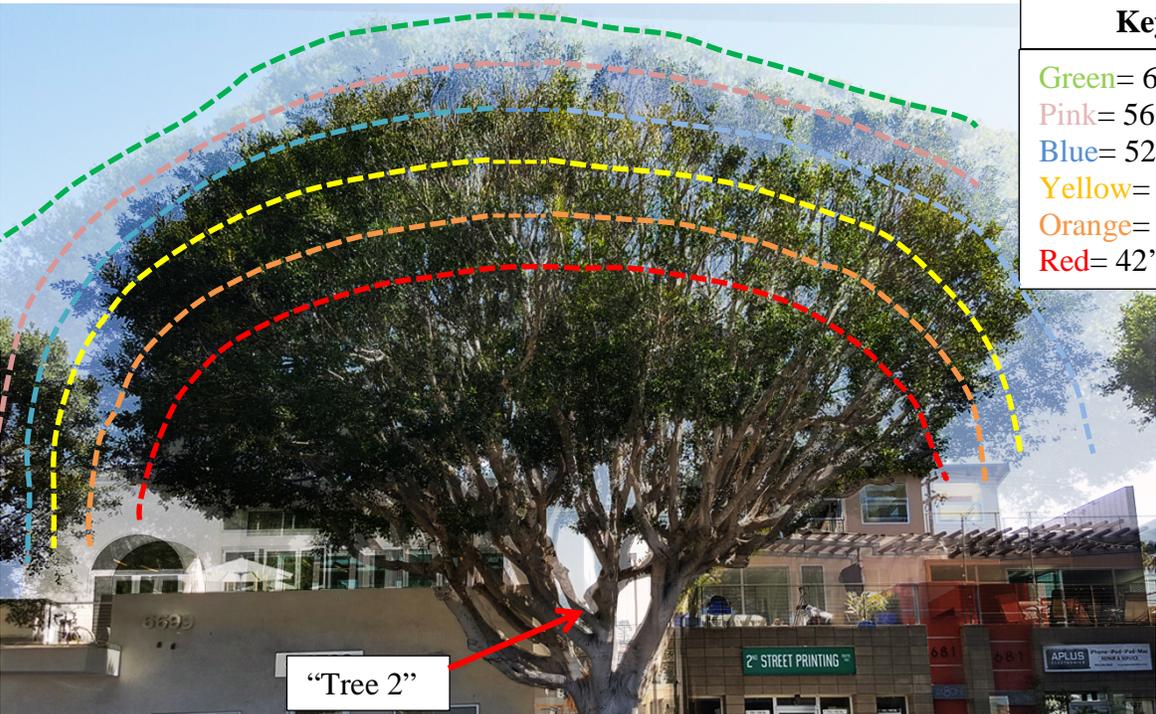
APPENDIX A PRUNING DOSE GOAL MONITORING

(Photo Date: 3-29-18)

Photo # 2	Tree 1
	
<p>Shown above is a picture of Tree 1 after the second pruning dose to show the building clearance that was achieved.</p>	

APPENDIX A PRUNING DOSE GOAL MONITORING

Photo Taken From: 33°02'37.1"N 117°17'40.6"W (Photo Date: 3-29-18)

Photo # 3	Tree 2								
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; padding: 5px;">Key</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Green= 60'</td> </tr> <tr> <td style="padding: 5px;">Pink= 56.4'</td> </tr> <tr> <td style="padding: 5px;">Blue= 52.8'</td> </tr> <tr> <td style="padding: 5px;">Yellow= 49.2'</td> </tr> <tr> <td style="padding: 5px;">Orange= 45.6'</td> </tr> <tr> <td style="padding: 5px;">Red= 42'</td> </tr> </tbody> </table>	Key	Green= 60'	Pink= 56.4'	Blue= 52.8'	Yellow= 49.2'	Orange= 45.6'	Red= 42'
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Yellow= 49.2'									
Orange= 45.6'									
Red= 42'									
<ul style="list-style-type: none"> • Illustrated above is an approximate example of what this pruning plan should visually accomplish for “Tree 2” during this five year period (see key for yearly goals, red dotted line representing year # 5). <p>Goals: The proposed goal is to achieve a 30% (18 feet) crown reduction over a five year period leaving the tree with a height of approximately 42 feet after the final year’s pruning dose.</p> <p>Progress: The subject tree is looking at an approximate overall canopy reduction of 3.6 feet (about 43 inches) per pruning dose without taking into account the seasonal growth. This year’s pruning goal was to reduce the canopy to a height of about 52.8 feet. As you can see, the tree canopy’s overall height has been reduced to about 53.5 feet (blue dotted Line) which is reasonably in line with the proposed five year pruning goals. There was a slight compromise for this year’s height goal in order to accomplish required building clearance and allow interior growth time to further develop into larger more suitable reduction pruning cut options.</p>									

APPENDIX A PRUNING DOSE GOAL MONITORING

(Photo Date: 3-26-18)

Photo # 4

Tree 2



Shown above is a photo of Tree # 2 prior to the second pruning dose to show the building clearance that was achieved (compare to photo # 5).

APPENDIX A PRUNING DOSE GOAL MONITORING

(Photo Date: 3-27-18)

Photo # 5

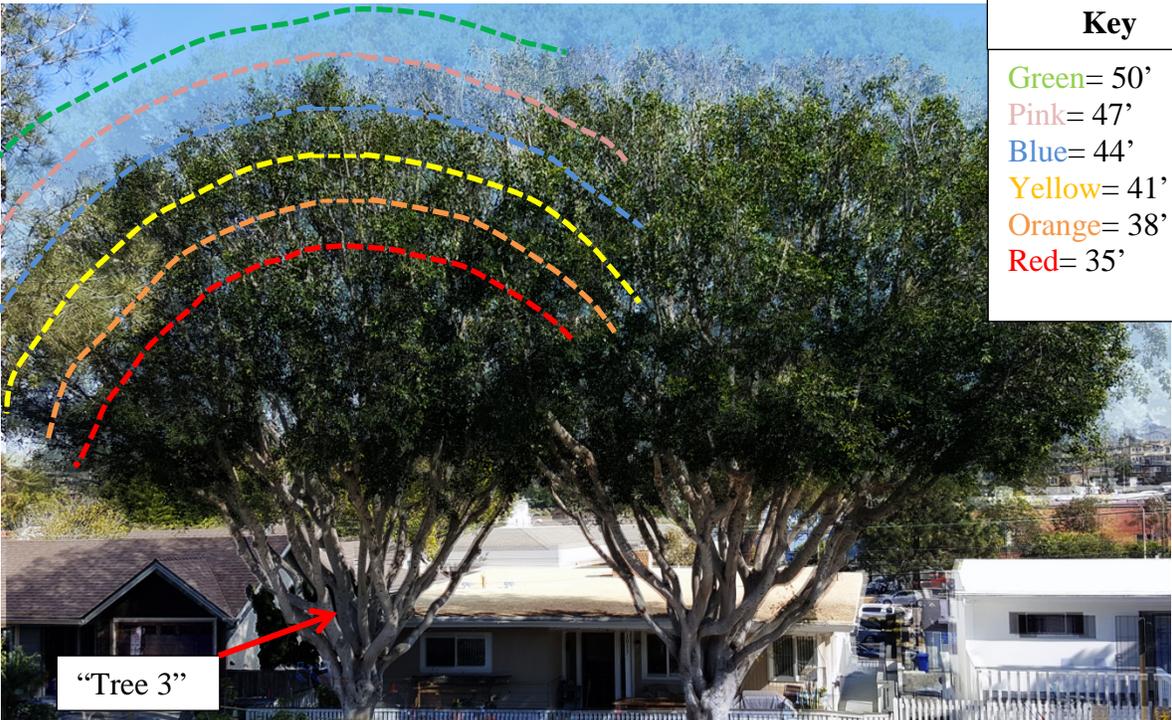
Tree 2



Shown above is a photo of Tree #2 after the second pruning dose to show the building clearance that was accomplished (compare to photo # 4).

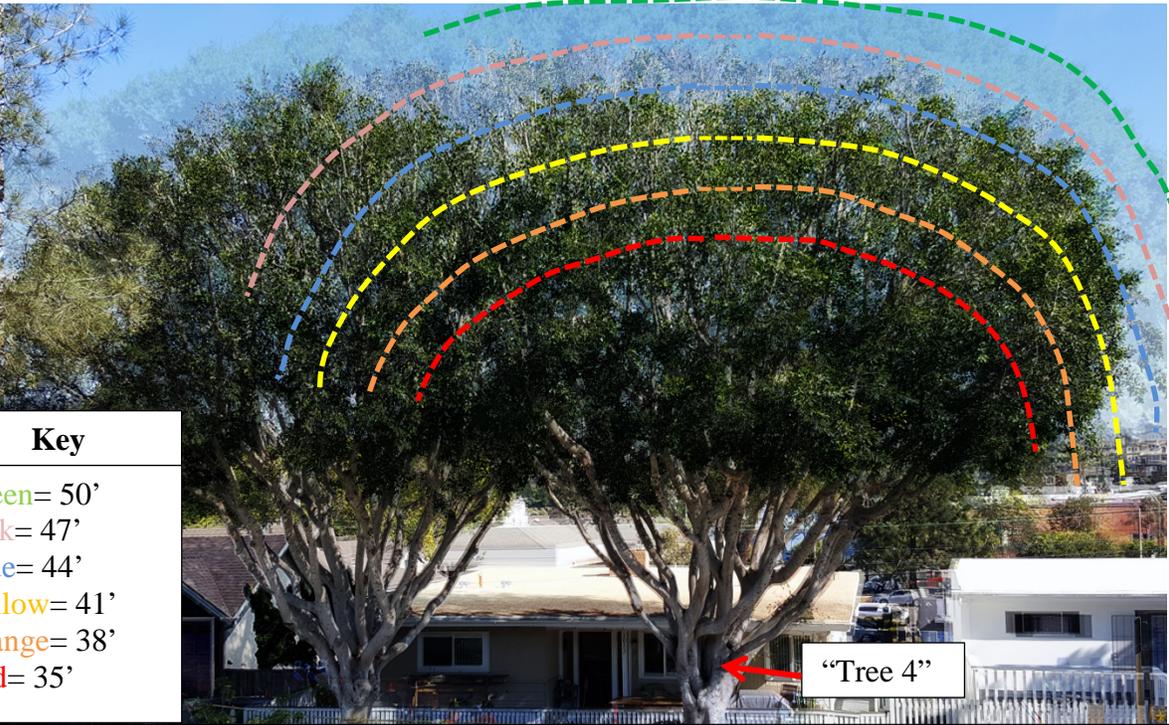
APPENDIX A PRUNING DOSE GOAL MONITORING

PHOTO TAKEN FROM: 33°02'19.9"N 117°17'42.0"W (Photo Date: 3-29-18)

Photo # 6	Tree 3							
 <table border="1" data-bbox="1218 451 1404 766"> <thead> <tr> <th>Key</th> </tr> </thead> <tbody> <tr> <td>Green= 50'</td> </tr> <tr> <td>Pink= 47'</td> </tr> <tr> <td>Blue= 44'</td> </tr> <tr> <td>Yellow= 41'</td> </tr> <tr> <td>Orange= 38'</td> </tr> <tr> <td>Red= 35'</td> </tr> </tbody> </table>		Key	Green= 50'	Pink= 47'	Blue= 44'	Yellow= 41'	Orange= 38'	Red= 35'
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Red= 35'								
<ul style="list-style-type: none"> Illustrated above is an approximate example of what this pruning plan should visually accomplish for “Tree 3” during this five year period (see key for yearly goals, red dotted line representing year # 5). <p>Goals: The proposed goal is to achieve a 30% (15 feet) crown reduction over a five year period leaving the tree with a height of approximately 35 feet after the final year’s pruning dose.</p> <p>Progress: The subject tree is looking at an average overall canopy reduction of 3 feet (36 inches) per pruning dose without taking into account the seasonal growth. This year’s pruning goal was to reduce the canopy to a height of about 44 feet. As you can see, the tree canopy’s overall height has been reduced to about 45 feet (blue dotted Line) which is reasonably in line with the proposed five year pruning goals. There was a slight compromise for this year’s height goal in order to accomplish required building clearance and allow interior growth time to further develop into larger more suitable reduction pruning cut options.</p>								

APPENDIX A PRUNING DOSE GOAL MONITORING

PHOTO TAKEN FROM: 33°02'19.9"N 117°17'42.0"W (Photo Date: 3-29-18)

Photo # 7	Tree 4
<div style="text-align: center; font-weight: bold; margin-bottom: 10px;">Key</div> <ul style="list-style-type: none"> Green= 50' Pink= 47' Blue= 44' Yellow= 41' Orange= 38' Red= 35' 	
<ul style="list-style-type: none"> Illustrated above is an approximate example of what this pruning plan should visually accomplish for “Tree 4” during this five year period (see key for yearly goals, red dotted line representing year # 5). <p>Goals: The proposed goal is to achieve a 30% (15 feet) crown reduction over a five year period leaving the tree with a height of approximately 35 feet after the final years pruning dose.</p> <p>Progress: The subject tree is looking at an average overall canopy reduction of 3 feet (36 inches) per pruning dose without taking into account the seasonal growth. This year’s pruning goal was to reduce the canopy to a height of about 44 feet. As you can see, the tree canopy’s overall height has been reduced to about 44.5 feet (blue dotted Line) which is acceptably in line with the proposed five year pruning goals. There was a slight compromise for this year’s height goal in order to accomplish required building clearance and allow interior growth time to further develop into larger more suitable reduction pruning cut options.</p>	

APPENDIX A PRUNING DOSE GOAL MONITORING

(Photo Date: 3-29-18)

Photo # 8

Tree 3 & Tree 4



Shown above is the clearance away from the home that was achieved after this pruning dose.

APPENDIX A PRUNING DOSE GOAL MONITORING

(Photo Date: 3-29-18)

Photo # 9

Tree 3 & Tree 4



Shown above is a picture of the WCA foreman (red arrow) while selecting his next pruning cut.

APPENDIX B ROOT SHAVING

(Photo Date: 3-26-18)

Photo # 10

Tree 3 & Tree 4



Shown above are the root bridge plates (red arrows) that needed to be adjusted to achieve proper water drainage away from the home.

APPENDIX B PRUNING ROOT SHAVING

(Photo Date: 3-26-18)

Photo # 11

Tree 4



Close-up of shaved root



Close-up of shaved root



Shown above are the two roots (red arrows) that were shaved down. It was decided that this shaving was the best solution for preserving the health and stability of the tree as best we can while achieving proper water drainage away from the home.



ASSUMPTIONS AND LIMITING CONDITIONS

1. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the Consultant can neither guarantee nor be responsible for the accuracy of information provided by others. Standard of Care has been met with regards to this project within reasonable and normal conditions.
2. The Consultant will not be required to give testimony or to attend court by reason of this report unless subsequent contractual agreements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
3. Loss or alteration of any part of this report invalidates the entire report.
4. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior written consent of the Consultant.
5. This report and any values expressed herein represent the opinion of the Consultant, and the Consultant's fee is in no way contingent upon the reporting of a stipulated result, a specified value, the occurrence of a subsequent event, nor upon any finding to be reported.
6. Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, or coring, unless otherwise stated. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the tree(s) or property in question may not arise in the future.
7. Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. It is highly recommended that you follow the arborist recommendations; however, you may choose to accept or disregard the recommendations and/or seek additional advice.
8. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specific period of time.



9. Any recommendation and/or performed treatments (including, but not limited to, pruning or removal) of trees may involve considerations beyond the scope of the arborist's services, such as property boundaries, property ownership, site lines, disputes between neighbors, and any other related issues. Arborists cannot take such considerations into account unless complete and accurate information is disclosed to the arborist. An arborist can then be expected to consider and reasonably rely on the completeness and accuracy of the information provided.
10. The author has no personal interest or bias with respect to the subject matter of this report or the parties involved. He/she has inspected the subject tree(s) and to the best of their knowledge and belief, all statements and information presented in the report are true and correct.
11. Unless otherwise stated, trees were examined using the risk assessment criteria detailed by the International Society of Arboriculture's publications *Best Management Practices – Tree Risk Assessment* and the *Tree Risk Assessment Manual*.



BIBLIOGRAPHY

Harris, Richard W., James R. Clark, and Nelda P. Matheny. *Arboriculture: Integrated Management of Landscape Tree, Shrubs, and Vines*. New Jersey: Prentice Hall, 2004. Print (ISA) *International Society of Arboriculture*. Web. 15 March 2014.

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Edward F. Gilman, Sharon J Lilly: *Best Management Practices Tree Pruning*. 2008 Print (ISA) *International Society of Arboriculture*.

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Richard W Harris: *Root-Shoot Ratios*. 1991 *Journal of Arboriculture*.



GLOSSARY

Apical dominance – Inhibition of the growth of lateral buds by the terminal bud of a plant shoot.

Best Management Practices (BMPs) – The International Society of Arboriculture has developed a series of Best Management Practices (BMPs) for the purpose of interpreting tree care standards and providing guidelines of practice for arborists, tree workers, and the people who employ their services.

Canopy – The part of the crown composed of leaves and small twigs (Harris, Clark, and Matheny 526).

Codominant – Equal in size and relative importance, usually associated with either the trunks/stems or scaffold limbs/branches in the crown (Harris, Clark, and Matheny 527).

Compartmentalization – Natural defense process in trees by which chemical and physical boundaries are created that act to limit the spread of disease and decay organisms.

Crown – The leaves and branches of a tree measured from the lowest branch on the trunk to the top of the tree (Harris, Clark, and Matheny 527).

Failure – Breakage of stem, branch, roots, or loss of mechanical support in the root system (Smiley, Matheny, and Lilly 48).

Root Bridge Plates- Root bridging and ramps can be used to create a spatial separation between infrastructure elements (typically sidewalks) and the root zone. This is an important yet costly remedial design option when root pruning is not possible. An added benefit of this technique is the facilitation of root evaluation when fitted with removable steel plates. Coarse aggregate material and drains can be implemented to reduce water and debris accumulation within the gap if necessary.

Reduction Pruning cut- Pruning cut that reduces the length of a branch or stem back to a live lateral branch large enough to assume apical dominance, typically at least 1/3rd the diameter of the cut stem.

Response Growth - New wood produced in response to loads to compensate for higher strain in marginal fibers, including reaction wood (compression and tension) and woundwood (Smiley, Matheny, and Lilly 50).

Risk – The combination of the likelihood of an event and the severity of the potential consequences. In the context of trees, risk is the likelihood of a conflict or tree failure occurring and affecting a target, and the severity of the associated consequence—personal injury, property damage, or disruption of activities (Smiley, Matheny, and Lilly 50).